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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,175	01/17/2007	Michinari Miyagawa	09865/0205474-US0	5398
7278	7590	11/12/2009		
DARBY & DARBY P.C. P.O. BOX 770 Church Street Station New York, NY 10008-0770			EXAMINER ROBINSON, ELIZABETH A	
			ART UNIT 1794	PAPER NUMBER
			MAIL DATE 11/12/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/599,175	Applicant(s) MIYAGAWA ET AL.	
	Examiner Elizabeth Robinson	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,6,15,16,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4,6,15,16,19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7-15-2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 4, 6, 15, 16, 19 and 20 are currently pending.

Specification

The amendment to the specification is approved.

Claim Rejections - 35 USC § 103

Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al. (JP 2002-124265) in view of Matsubara et al. (US 2004/0041536). A formal English translation of Sakamoto is provided with this Office Action.

Sakamoto (Paragraphs 6-8) teaches a conductive resin sheet comprising a thermoplastic resin and conductive particles. The volume resistivity and moisture permeability of the sheet are measured in the claimed manner (Paragraphs 31 and 32). The moisture permeability (Paragraph 12) can be as low as $1\text{g}/(\text{m}^2\cdot\text{day})$. The volume resistivity is preferably $10\text{ ohm}\cdot\text{cm}$ or less (Paragraph 13). The thermoplastic resin is present at 40 to 85 weight % of the film (Paragraph 13) and can be a polypropylene copolymer (Paragraph 22). The film can be used as the conductive resin sheet for battery electrodes (Paragraph 1). The conductive resin sheet adheres due to the

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thermoplastic resin to the electrode active material (Paragraph 21) or can be adhered to a second conductive resin sheet (Paragraphs 23-26).

Sakamoto does not explicitly teach an amorphous propylene copolymer as the thermoplastic resin.

Matsubara (Paragraph 19) teaches a battery electrode with a binder that comprises an amorphous polypropylene / C₂ to C₈ olefin copolymer. The particular binder provides superior adhesion for the layers of the electrode (Paragraphs 21-22) to increase cell life.

It would be obvious to one of ordinary skill in the art to use the binder of Matsubara as the binder of Sakamoto, in order to increase the adhesion of the layers of the electrode, in order to increase cell life of the battery.

The film of Sakamoto, using the binder of Matsubara to ensure layer adhesion, would have the same binder in the same amount as in the instant application and thus, would intrinsically meet the claimed peel strength limitations.

Claims 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakazawa et al. (US 6,671,165), in view of Sakamoto et al. (JP 2002-124265) and Matsubara et al. (US 2004/0041536) as applied to claims 4 and 6 above.

Nakazawa (Column 3, lines 40-54) teaches an electric double layer capacitor comprising electrodes and collectors. The collectors are formed from copper foil (Column 4, lines 20-26). It is desired that the collector has a low degree of gas permeability (Column 1, lines 44-50).

Nakazawa does not teach the collector as being formed from the film of claims 4 or 6.

Sakamoto (Paragraphs 3-5) teaches that a metallic foil of a cell electrode can be replaced by a conductive resin sheet, in order to make the cell lighter and to increase lifespan due to the elimination of corrosion. The conductive resin sheet has a low vapor permeability (Paragraph 12). As stated above, the film of Sakamoto, using the binder of Matsubara to ensure layer adhesion, meets the limitations of claims 4 and 6.

It would be obvious to one of ordinary skill in the art to use the film of Sakamoto, using the binder of Matsubara to ensure layer adhesion, as the collector of Nakazawa, in order to form a lighter weight capacitor with an increased lifespan, while still maintaining a low vapor permeability.

Claims 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurosaki et al. (US 2002/0073534), in view of Sakamoto et al. (JP 2002-124265) and Matsubara et al. (US 2004/0041536) as applied to claims 4 and 6 above.

Kurosaki (abstract) teaches a proton-ion polymer battery. The battery should be lightweight (Paragraph 4). The electrodes comprise a current collector that is can be formed from an electroconductive rubber and a metal plate and should minimize liquid permeability (Paragraphs 53 and 54).

Kurosaki does not teach the collector as being formed from the film of claims 4 or 6.

Sakamoto (Paragraphs 3-5) teaches that a metallic foil of a cell electrode can be replaced by a conductive resin sheet, in order to make the cell lighter and to increase lifespan due to the elimination of corrosion. The conductive resin sheet has a low vapor permeability (Paragraph 12). As stated above, the film of Sakamoto, using the binder of Matsubara to ensure layer adhesion, meets the limitations of claims 4 and 6.

It would be obvious to one of ordinary skill in the art to use the film of Sakamoto, using the binder of Matsubara to ensure layer adhesion, as the collector of Kurosaki, in order to form a lighter weight capacitor with an increased lifespan, while still maintaining a low vapor permeability.

Response to Arguments

Applicant's arguments filed August 10, 2009 have been fully considered but they are not persuasive.

Applicant argues that Matsubara et al. (US 2004/0041536) teaches that the mass of the amorphous copolymer should be 20% by mass or less and thus, would not meet the limitations of claims 4 and 6. However, note that while Matsubara does not disclose all the features of the present claimed invention, Matsubara is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely that an amorphous polypropylene / C₂ to C₈ olefin copolymer provides better adhesion in a battery, and in

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combination with the amount of copolymer taught in primary reference, discloses the presently claimed invention. The primary reference, Sakamoto et al. (JP 2002-124265), teaches that there are no particular limits to the thermoplastic resin of the conductive resin sheet, that a polypropylene copolymer is one of the preferred resins (Paragraph 22) and that the thermoplastic resin is present at 40 to 85 weight % of the film (Paragraph 13).

Applicant argues that neither Sakamoto nor Matsubara teaches a lamination of two sheets. However, Sakamoto teaches that the conductive resin sheet can be adhered to a second conductive resin sheet (Paragraphs 23-26).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is (571)272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. R./
Elizabeth Robinson
Examiner, Art Unit 1794

November 2, 2009

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794